CLAIMS

1. Method of signal processing for a spread spectrum digital radiocommunication receiver, comprising the following steps:
   - calculation of an estimate of at least one symbol transmitted by sending means by applying to a radio signal received a processing taking into account at least one propagation path from the sending means;
   - evaluation of a parameter of reliability of the calculated estimate; and
   - when the reliability parameter evaluated does not satisfy a confidence criterion, calculation of a refined estimate of the symbol by taking into account at least one additional propagation path from the sending means in the processing applied to the radio signal received.

2. Method according to claim 1, in which the steps of evaluating the reliability parameter and of calculating a refined estimate are repeated for as long as the evaluated reliability parameter does not satisfy the confidence criterion and for as long as at least one path out of a maximum number of propagation paths from the sending means has not yet been taken into account in a new estimate of the symbol.

3. Method according to claim 1, in which, prior to the said processing applied to the radio signal received, a probing is performed that identifies, on the basis of an analysis of an impulse response of a propagation channel between the sending means and the receiver, respective delays and energies of reception for the said propagation paths.

4. Method according to claim 3, in which the propagation paths are ranked according to a

descending order of their respective reception energies and in which the additional propagation path taken into account in the calculation of the refined estimate of the symbol is the propagation path which, according to the said ranking, immediately follows the propagation paths taken into account in the calculation of the previous estimate.

5. Method according to claim 1, in which the radio signal is a binary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the absolute value of the said estimate.

6. Method according to claim 1, in which the radio signal is a quaternary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the smallest of the absolute values of the real and imaginary parts of the said estimate.

7. Method according to claim 1, in which the confidence criterion consists in the parameter of reliability of the calculated estimate exceeding a threshold.

8. Method according to claim 7, in which the said threshold depends on a service life allocated to a communication to which the radio signal received pertains.

9. Method according to claim 7, in which the said threshold depends on a noise level estimated over a propagation channel between the sending means and the receiver.

10. Method according to claim 1, in which the refined estimate of the symbol is calculated by adding an

estimated contribution of the said additional propagation path to the estimate previously calculated for the symbol.

11. Method according to claim 1, in which the propagation paths taken into account in the calculations of estimates include paths originating from several senders belonging to the said sending means, which send radio signal components that carry identical information symbols and that are multiplexed with different spreading codes.

12. Spread spectrum digital radiocommunication receiver, comprising the following signal processing means :

- means for calculating an estimate of at least one symbol transmitted by sending means by applying to a radio signal received a processing taking into account at least one propagation path from the sending means;
- means for evaluating a parameter of reliability of the calculated estimate; and
- means for, when the reliability parameter evaluated does not satisfy a confidence criterion, calculating a refined estimate of the symbol by taking into account at least one additional propagation path from the sending means in the processing means applied to the radio signal received.

13. Spread spectrum digital radiocommunication receiver according to claim 12, in which the means for evaluating the reliability parameter and the means for calculating a refined estimate are carried out repeatedly for as long as the evaluated reliability parameter does not satisfy the confidence criterion and for as long as at least one path out of a maximum number of

propagation paths from the sending means has not yet been taken into account in a new estimate of the symbol.

14. Spread spectrum digital radiocommunication receiver according to claim 12, comprising further means for, before carrying out the said processing means applied to the radio signal received, performing a probing that identifies, on the basis of an analysis of an impulse response of a propagation channel between the sending means and the receiver, respective delays and energies of reception for the said propagation paths.

15. Spread spectrum digital radiocommunication receiver according to claim 14, comprising further means for ranking the propagation paths according to a descending order of their respective reception energies and in which the additional propagation path taken into account by the means for calculating the refined estimate of the symbol is the propagation path which, according to the said ranking, immediately follows the propagation paths taken into account in the calculation of the previous estimate.

16. Spread spectrum digital radiocommunication receiver according to claim 12, in which the radio signal is a binary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the absolute value of the said estimate.

17. Spread spectrum digital radiocommunication receiver according to claim 12, in which the radio signal is a quaternary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the

smallest of the absolute values of the real and imaginary parts of the said estimate.

18. Spread spectrum digital radiocommunication receiver according to claim 12, in which the confidence criterion consists in the parameter of reliability of the calculated estimate exceeding a threshold.

19. Spread spectrum digital radiocommunication receiver according to claim 18, in which the said threshold depends on a service life allocated to a communication to which the radio signal received pertains.

20. Spread spectrum digital radiocommunication receiver according to claim 18, in which the said threshold depends on a noise level estimated over a propagation channel between the sending means and the receiver.

21. Spread spectrum digital radiocommunication receiver according to claim 12, in which the means for calculating the refined estimate of the symbol comprise means for adding an estimated contribution of the said additional propagation path to the estimate previously calculated for the symbol.

22. Spread spectrum digital radiocommunication receiver according to claim 12, in which the propagation paths taken into account by the means for calculating the estimates include paths originating from several senders belonging to the said sending means, which send radio signal components that carry identical information symbols and that are multiplexed with different spreading codes.

23. Computer program to be installed in a radiocommunication receiver, the program comprising instructions for implementing the following steps upon execution of the program by signal processing means of the receiver :
- calculation of an estimate of at least one symbol transmitted by sending means by applying to a radio signal received a processing taking into account at least one propagation path from the sending means;
- evaluation of a parameter of reliability of the calculated estimate; and
- when the reliability parameter evaluated does not satisfy a confidence criterion, calculation of a refined estimate of the symbol by taking into account at least one additional propagation path from the sending means in the processing applied to the radio signal received.

24. Computer program according to claim 23, in which the steps of evaluating the reliability parameter and of calculating a refined estimate are repeated for as long as the evaluated reliability parameter does not satisfy the confidence criterion and for as long as at least one path out of a maximum number of propagation paths from the sending means has not yet been taken into account in a new estimate of the symbol.

25. Computer program according to claim 23, in which, prior to the said processing applied to the radio signal received, a probing is performed that identifies, on the basis of an analysis of an impulse response of a propagation channel between the sending means and the receiver, respective delays and energies of reception for the said propagation paths.

26. Computer program according to claim 25, in which the propagation paths are ranked according to a descending order of their respective reception energies and in which the additional propagation path taken into account in the calculation of the refined estimate of the symbol is the propagation path which, according to the said ranking, immediately follows the propagation paths taken into account in the calculation of the previous estimate.

27. Computer program according to claim 23, in which the radio signal is a binary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the absolute value of the said estimate.

28. Computer program according to claim 23, in which the radio signal is a quaternary modulation signal, and the parameter of reliability of the calculated estimate of a symbol is proportional to the smallest of the absolute values of the real and imaginary parts of the said estimate.

29. Computer program according to claim 23, in which the confidence criterion consists in the parameter of reliability of the calculated estimate exceeding a threshold.

30. Computer program according to claim 29, in which the said threshold depends on a service life allocated to a communication to which the radio signal received pertains.

31. Computer program according to claim 29, in which the said threshold depends on a noise level estimated over a propagation channel between the sending means and the receiver.

32. Computer program according to claim 23, in which the refined estimate of the symbol is calculated by adding an estimated contribution of the said additional propagation path to the estimate previously calculated for the symbol.

33. Computer program according to claim 23, in which the propagation paths taken into account in the calculations of estimates include paths originating from several senders belonging to the said sending means, which send radio signal components that carry identical information symbols and that are multiplexed with different spreading codes.